Amendments to Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1-17. (Cancelled):

18. (New): A method of increasing the power output in a direct methanol fuel cell comprising:

(i) providing (a) a solid fluorinated polymer electrolyte membrane having an ion exchange ratio (IXR) of at least about 17, wherein the solid polymer electrolyte membrane has a first surface and a second surface; and (b) at least one catalyst layer present on each of the first and second surfaces of the solid polymer electrolyte membrane; and

(ii) operating the direct methanol fuel cell at a temperature of less than 60 °C; wherein the methanol cross-over rate is reduced by at least about 20 %; wherein the power output is increased up to about 15% as compared to a fuel cell comprising a solid fluorinated polymer electrolyte membrane having an ion exchange ratio (IXR) of about 15 and the same thickness as the solid fluorinated polymer electrolyte membrane in (a).

19. (New): The direct methanol fuel cell of Claim 1 wherein IXR of the solid fluorinated polymer electrolyte membrane in (a) is 17 to 29.

20. (New): The method of Claim 18, wherein IXR of the solid fluorinated polymer electrolyte membrane in (a) is from 19 to 23.

21. (New): The method of Claim 18, wherein IXR of the solid fluorinated polymer electrolyte membrane in (a) is 23.

22. (New): The method of Claim 18, wherein the temperature is about 50 to about 55 °C.

23. (New): The method of Claim 18, wherein the temperature is about 40 to about 50 °C.

24. (New): The method of Claim 18, wherein the temperature is about 20 to about 40 °C.

25. (New): The method of Claim 18, wherein the power output is increased by about 5 to about 15%.

26. (New): The method of Claim 18, wherein the power output is increased by about 10 to about 15%.

27. (New): The method of Claim 18, wherein the thickness of the solid fluorinated polymer electrolyte membrane in (a) is 175μm, and the IXR is 23, and methanol cross-over rate is reduced by 60%.

28. (New): The method of Claim 18, wherein the thickness of the solid fluorinated polymer electrolyte membrane in (a) is 250μm, and the IXR is 23, and methanol cross-over rate is reduced by 75%.

29. (New): The method of Claim 18, wherein the solid fluorinated polymer electrolyte membrane in (a) is a perfluorinated polymer.

30. (New): The method of Claim 29, wherein the perfluorinated polymer comprises a carbon backbone and at least one side chain represented by the formula $-(OCF_2CFR_f)_a-OCF_2CFR'_fSO_3Y$, wherein R_f and R'_f are independently selected from F, Cl or a perfluorinated alkyl group having 1 to 10 carbon atoms, a = 0, 1 or 2, and Y is H, an alkali metal, or NH_4.

31. (New): The direct methanol fuel cell of Claim 30, wherein the perfluorinated polymer comprises a carbon backbone and at least one side chain represented by the formula $-O-CF_2CF_2SO_3H$, or a salt thereof.

32. (New): The method of Claim 31, wherein the perfluorinated polymer has an IXR of about 17 to about 29.

33. (New): The method of Claim 32, wherein the perfluorinated polymer has an IXR of about 17 to about 29.

34. (New): The method of Claim 33, wherein the perfluorinated polymer has an IXR of about 23.